The LAHMEYER BIM-Approach for the "Technical Feasibility Study" for Power Plant Project: "PP15"

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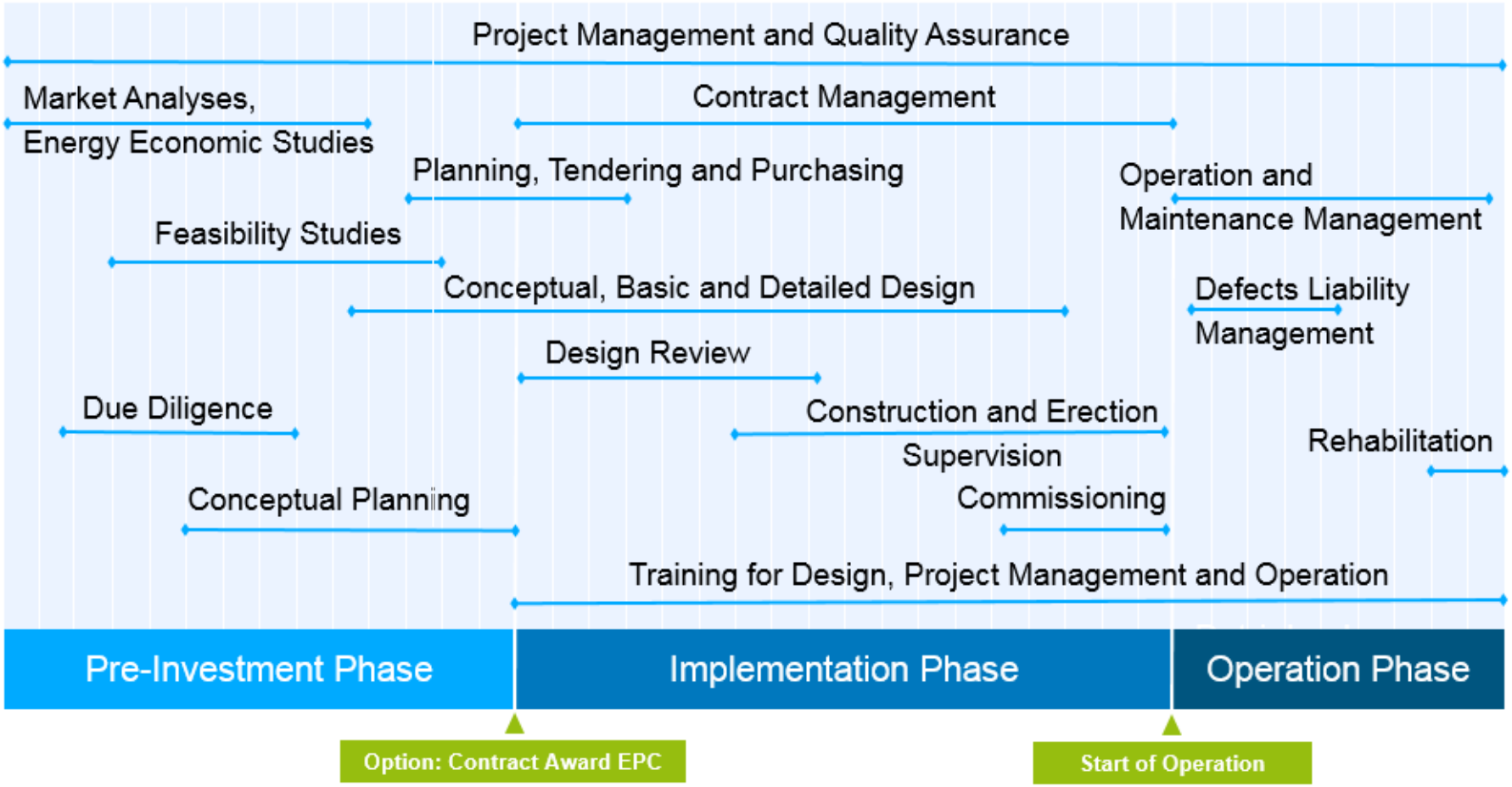
LAHMEYER International GmbH,
Bad Vilbel.

History of LAHMEYER International GmbH, Bad Vilbel

1890	Wilhelm Lahmeyer founded W. Lahmeyer & Co. in Frankfurt am Main
1897	Lahmeyer AG completed BOT scheme in Romania (Sinaia HEPP, 4 x 250 kW)
1898	Wilhelm Lahmeyer Cofounder of RWE
1966	Lahmeyer's engineering department transformed into an international consulting firm: Lahmeyer International GmbH
1993	Lahmeyer established subsidiary in India: Lahmeyer International India
2007	Lahmeyer has been taken over by Capiton
2009	Lahmeyer established subsidiary in Russia: OOO Lahmeyer International Rus
2010	Acquisition of the Turkish group Hidro Dizayn with its subsidiary Hidrolin in Georgia
2012	Acquisition of IDP Consult, Philippines
2014	Lahmeyer has been taken over by Tractebel Engineering, Belgium, a company of ENGIE (formerly GDF SUEZ)
2016	**Jubilee 50 Years of Lahmeyer International**

LAHMEYER SERVICES



PROJECT PARAMETERS:

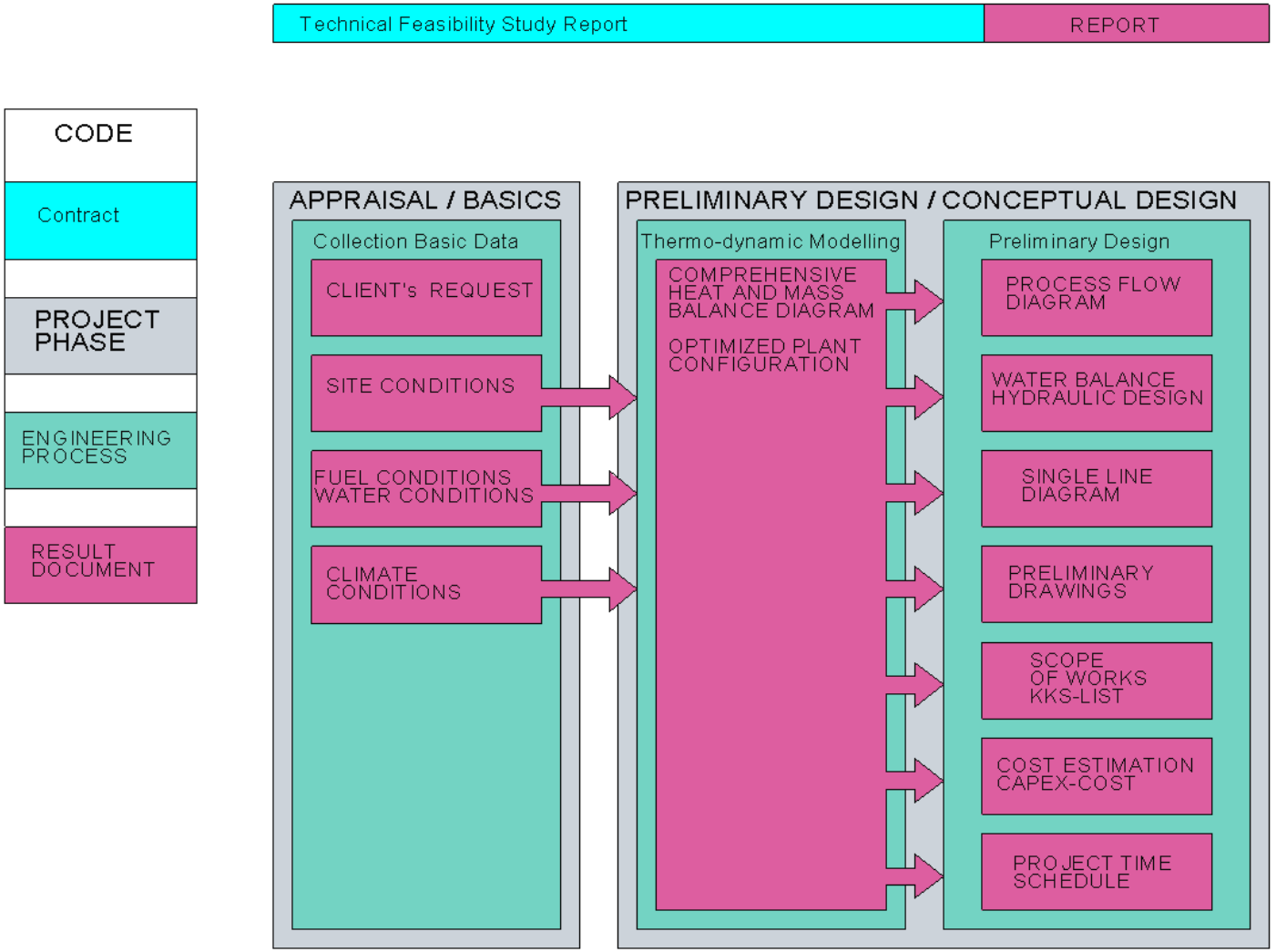
Project Name:
PP15

Client:
“Saudi Electricity Company” (“SEC”)

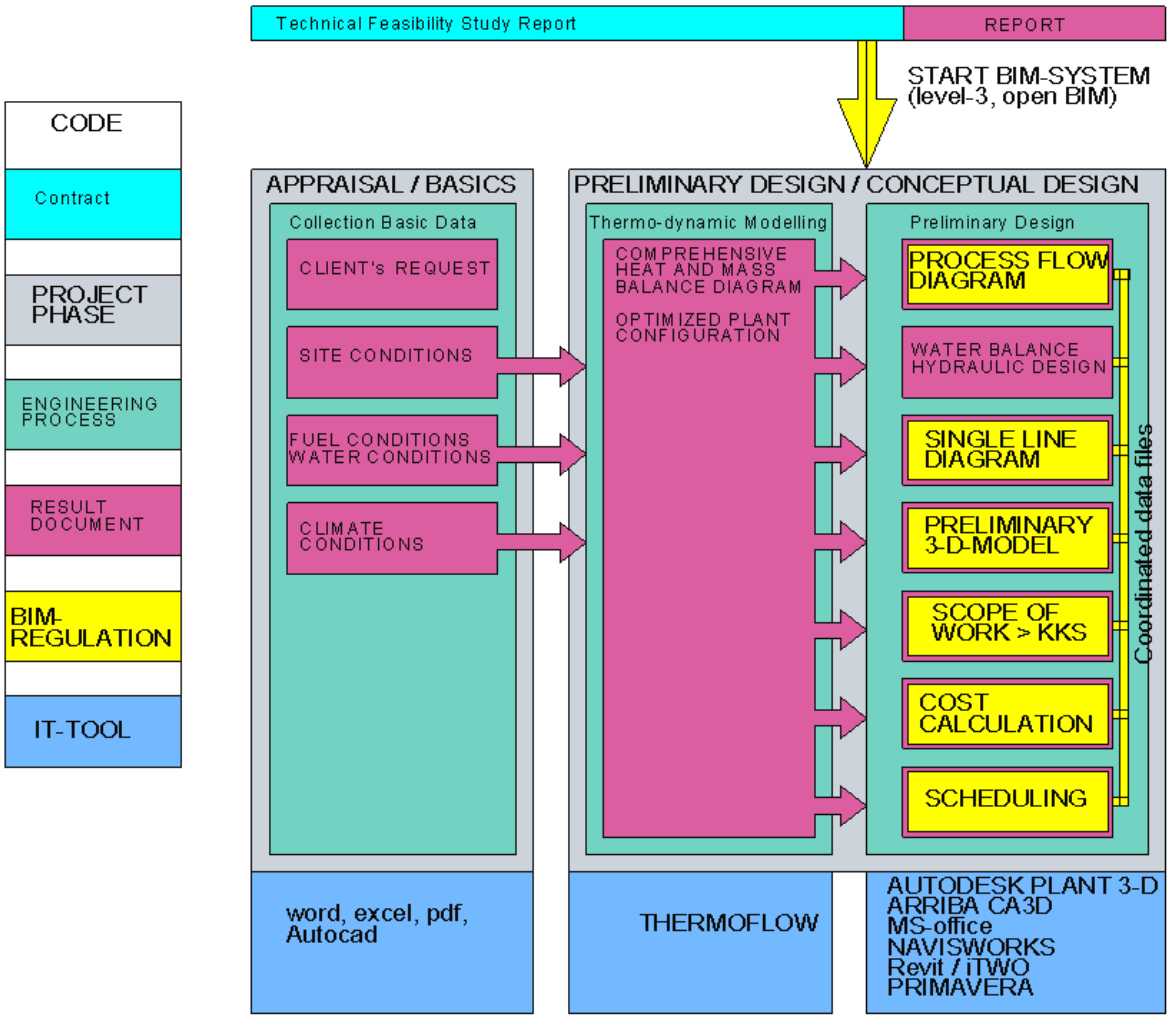
Capacity:
5 400 MW combined cycle power plant and “concentrated solar power” (“CSP”) portion with 280 MW

Dedicated Site Area:
9 km^2

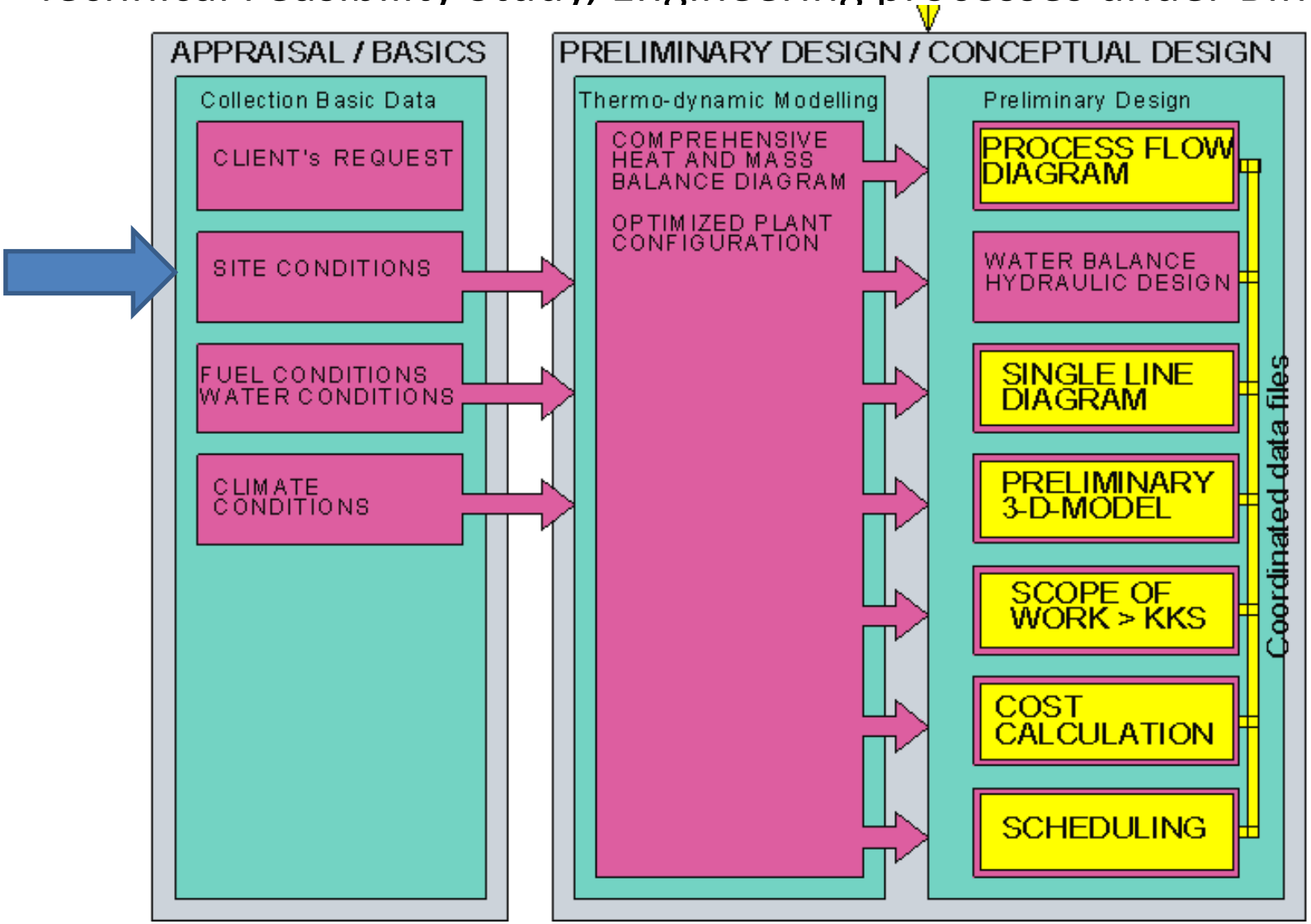
Technical Feasibility Study, Engineering Processes



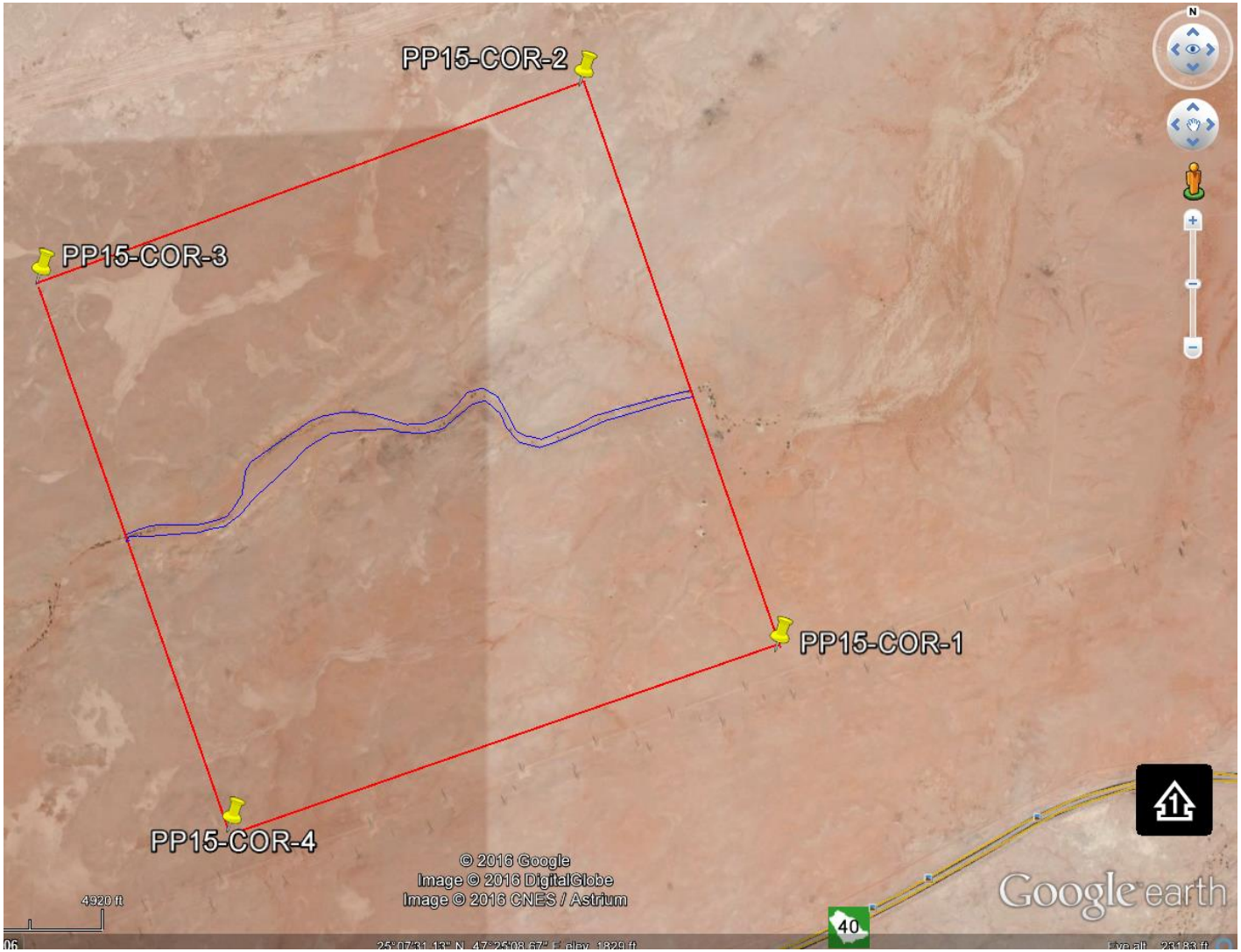
Technical Feasibility Study, Engineering processes under BIM



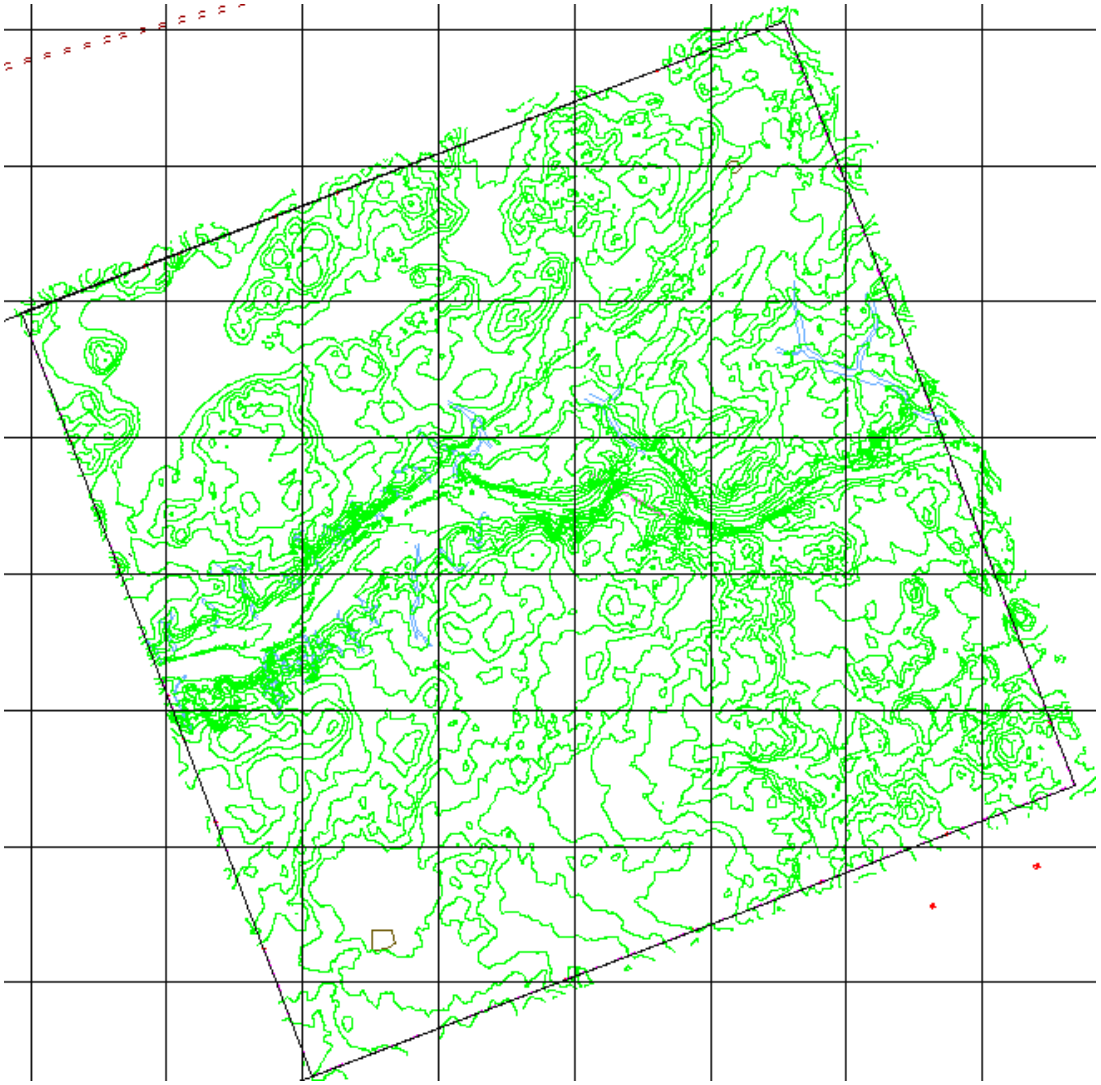
Technical Feasibility Study, Engineering processes under BIM



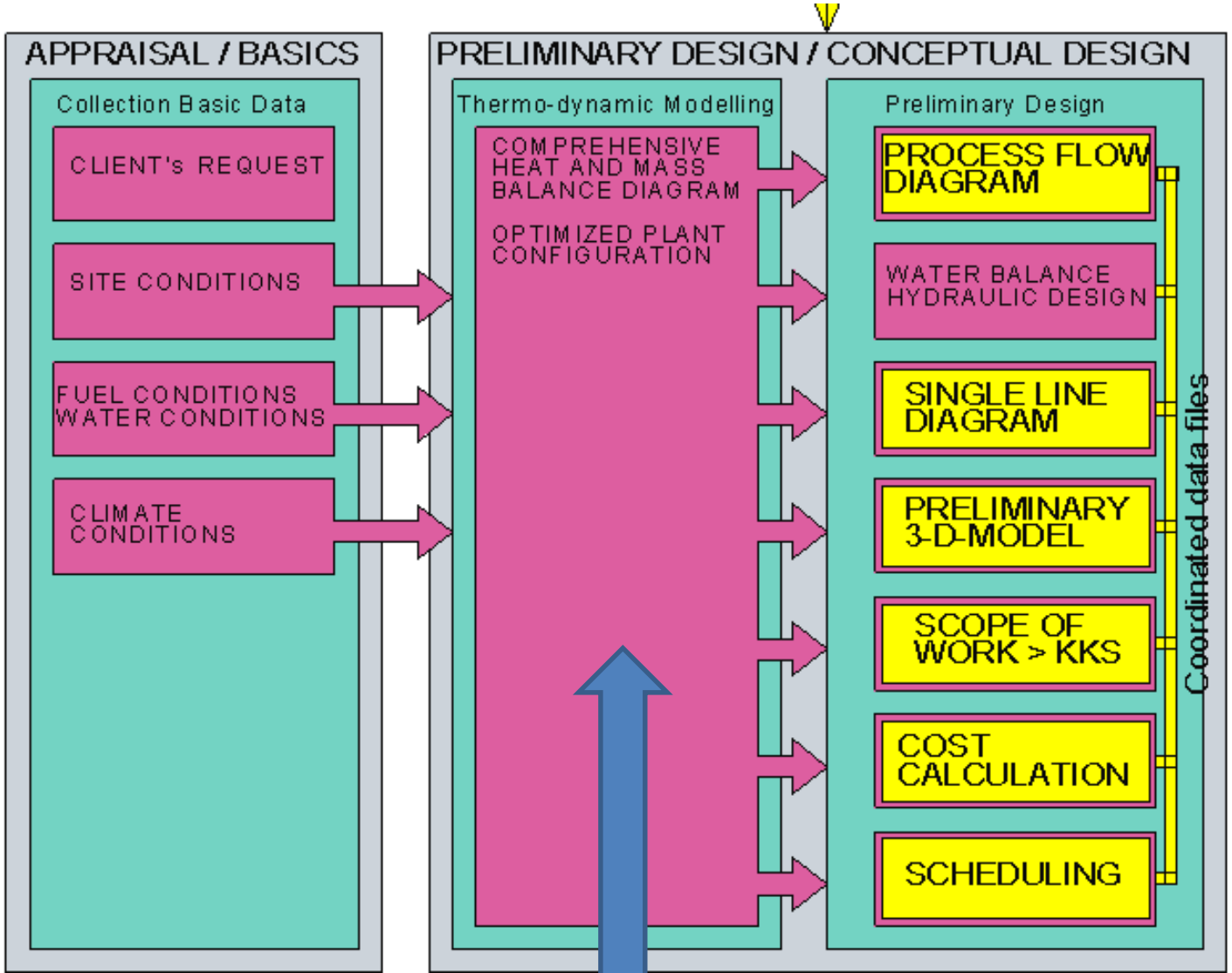
Basics: Location Site Area 9km^2



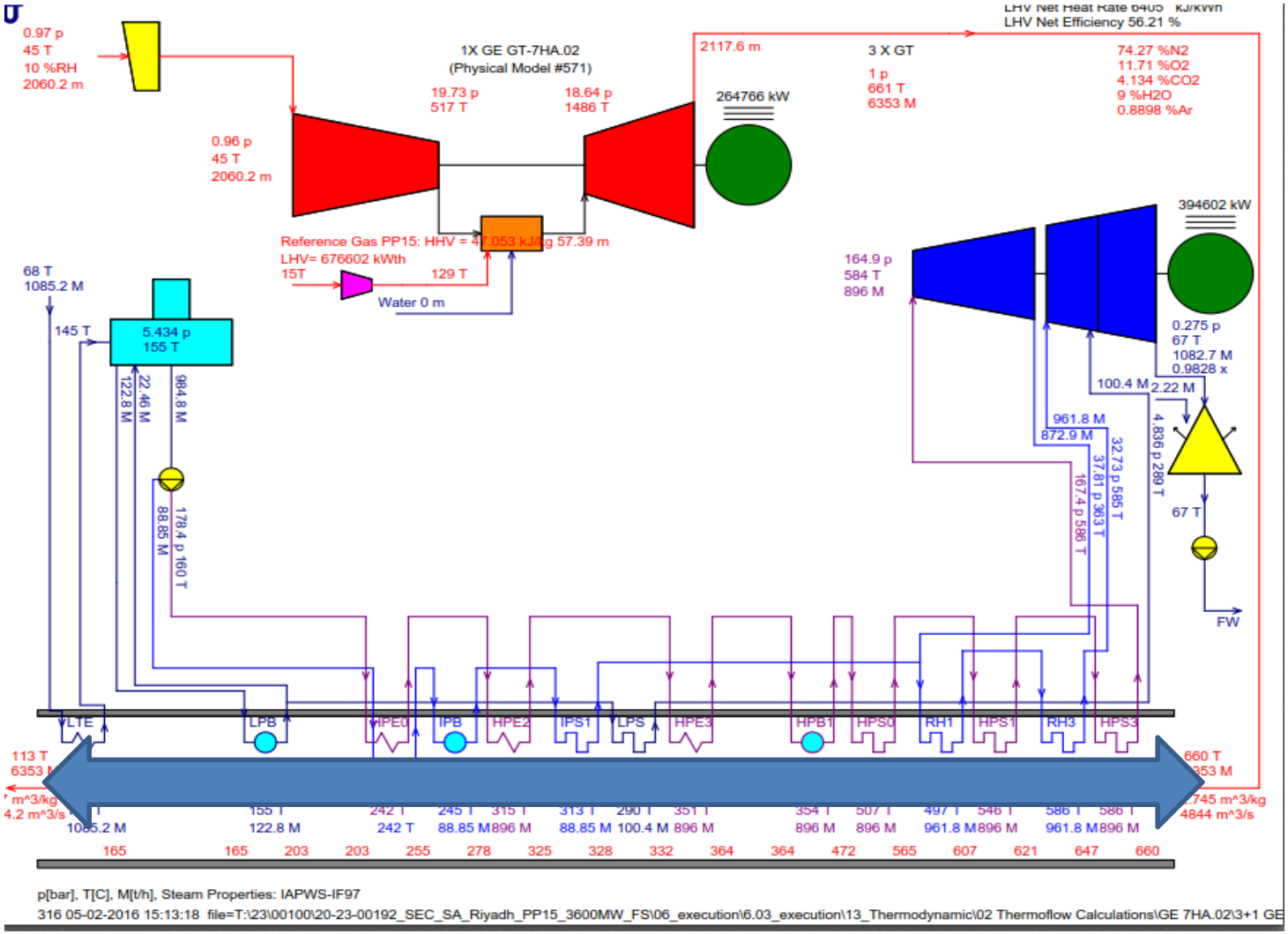
Basics: Topographic survey site area 9km²



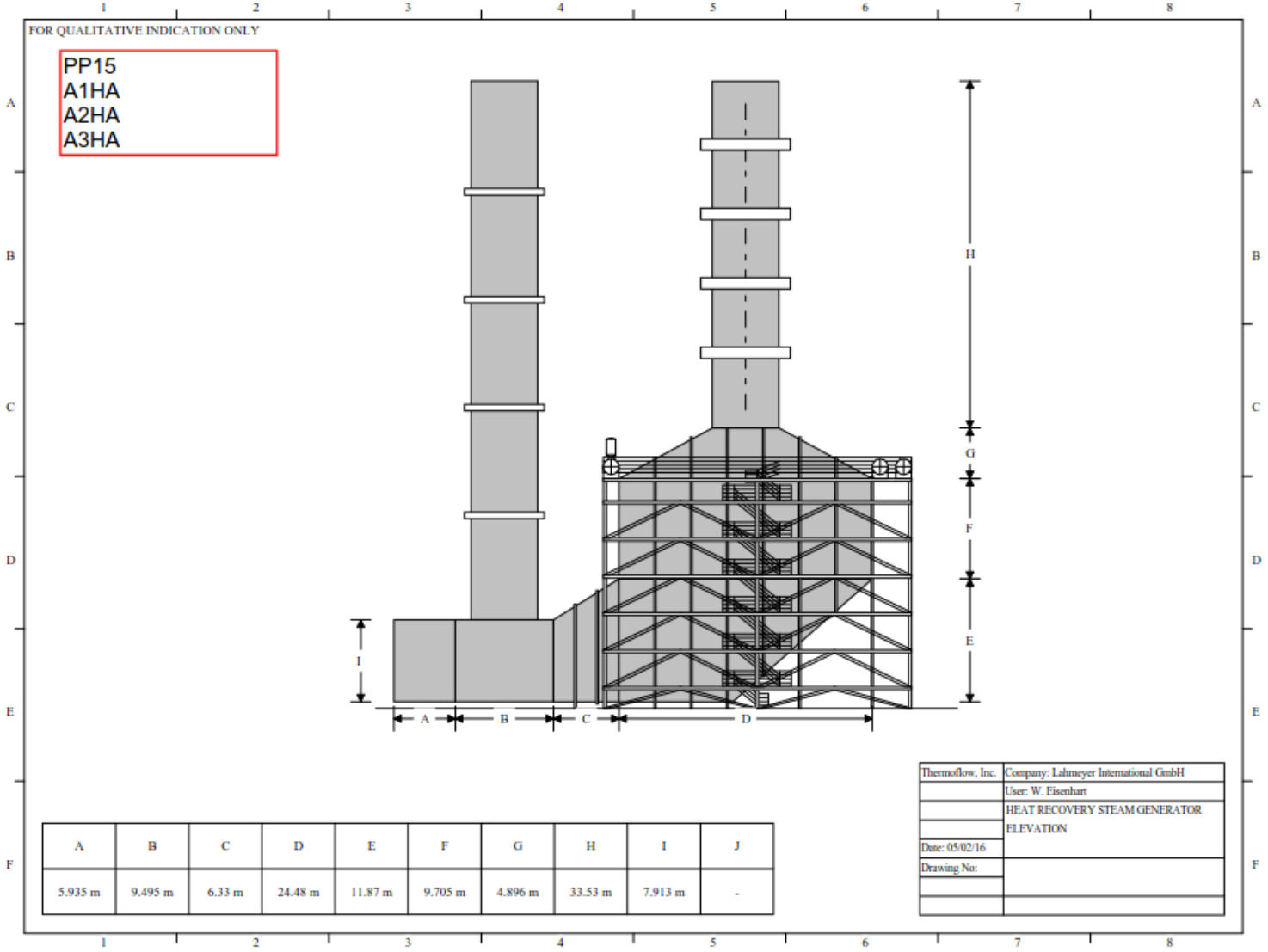
Conceptual Design: Thermo-dynamic Modelling



Conceptual Design: Heat and Mass Balance Diagram (HMBD)

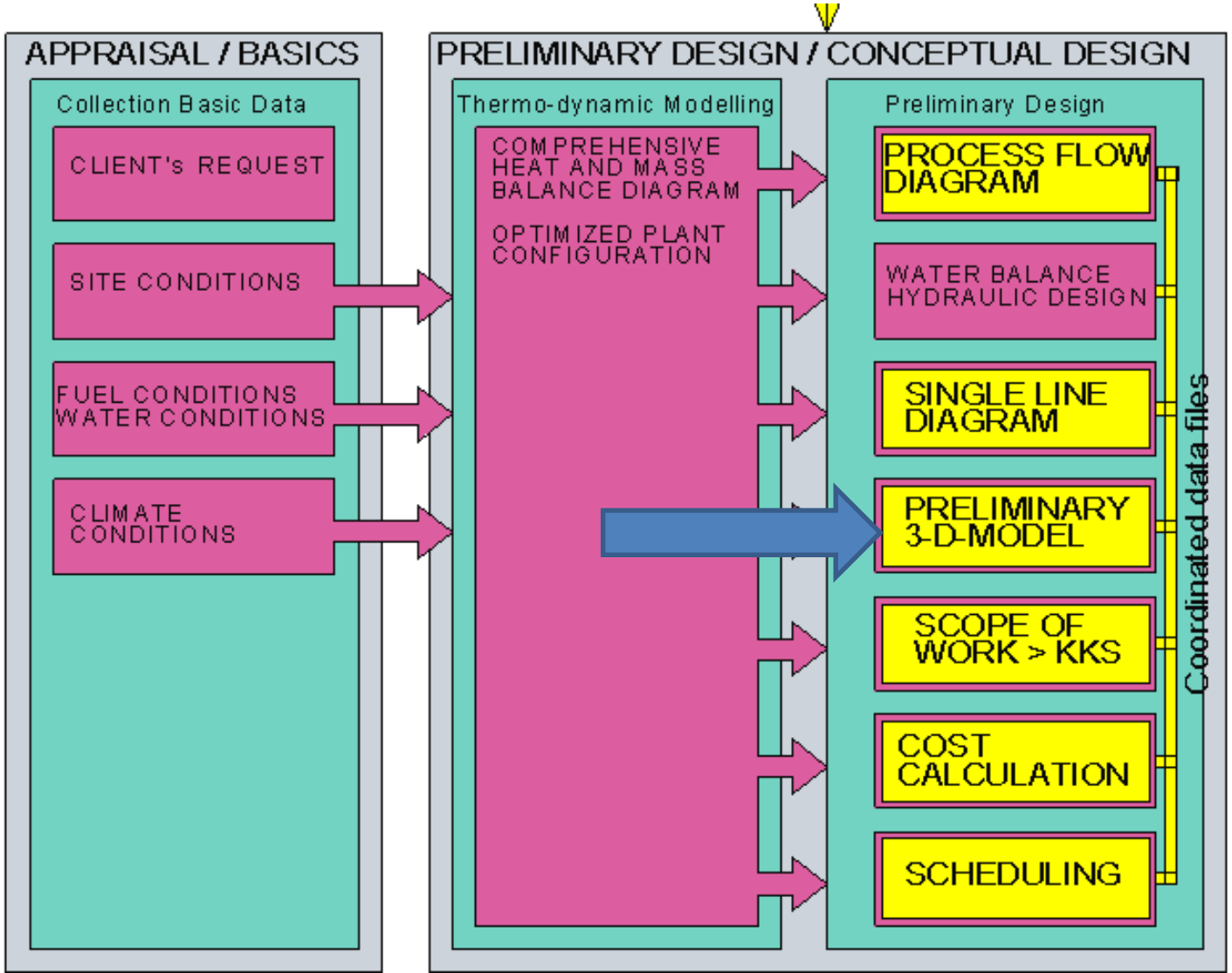


Conceptual Design: Heat Recovery Steam Generator (HRSG)

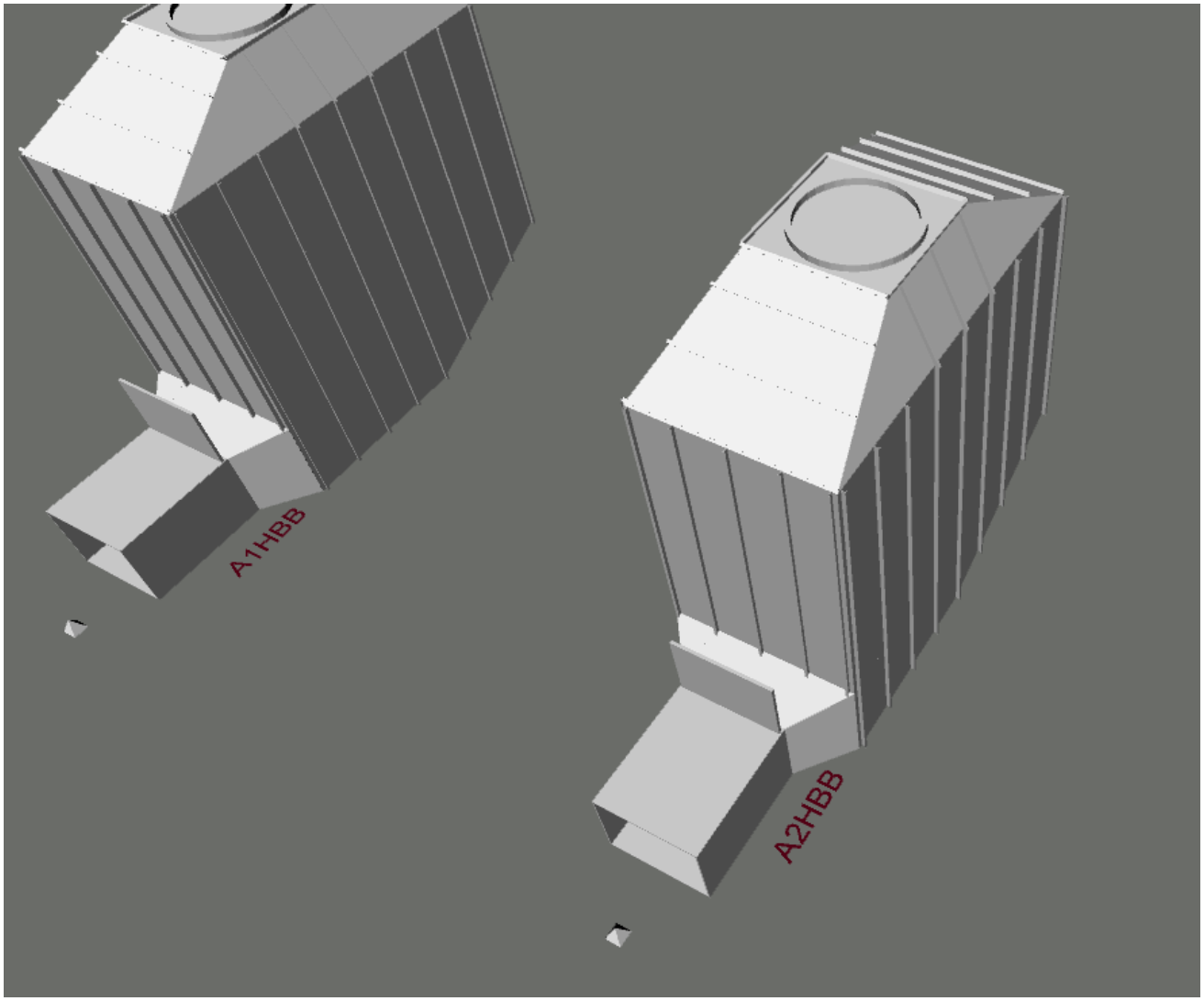


A	B	C	D	E	F	G	H	I	J
5.935 m	9.495 m	6.33 m	24.48 m	11.87 m	9.705 m	4.896 m	33.53 m	7.913 m	-

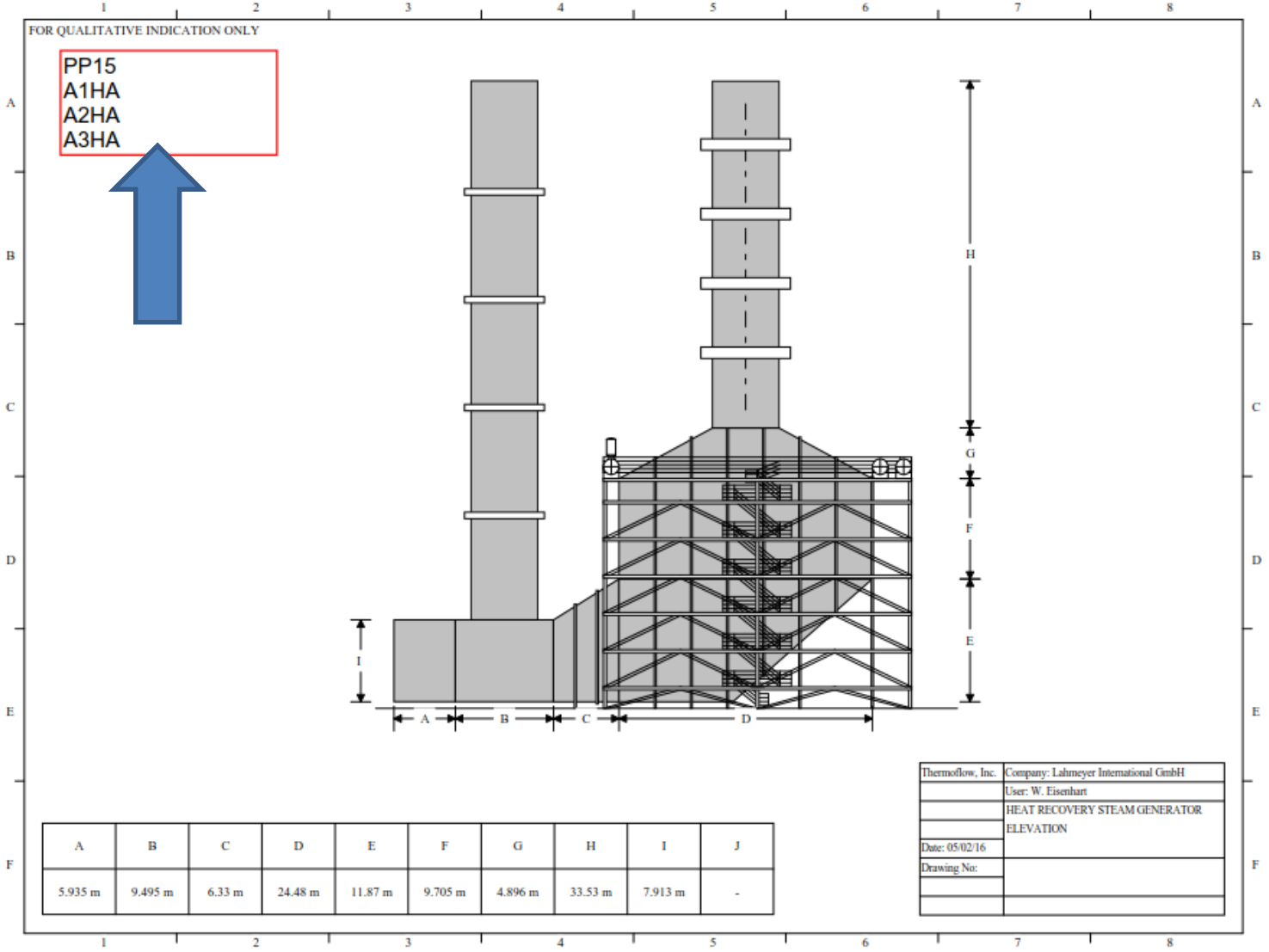
Conceptual Design: Start 3-D-Modelling



Conceptual Design: 3-D-Model Enclosure HRSG



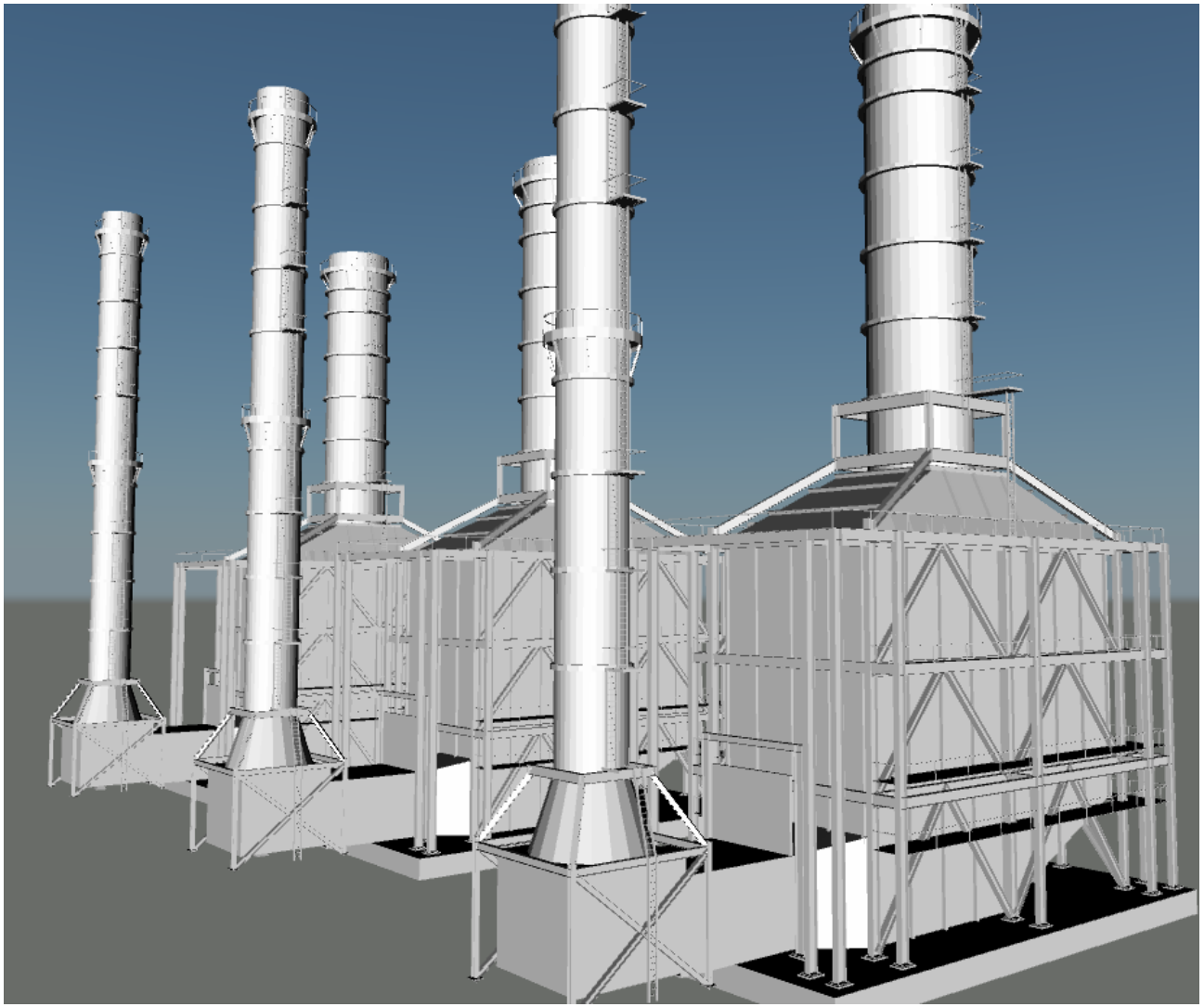
Conceptual Design: Thermo-dynamic Modelling HRSG's



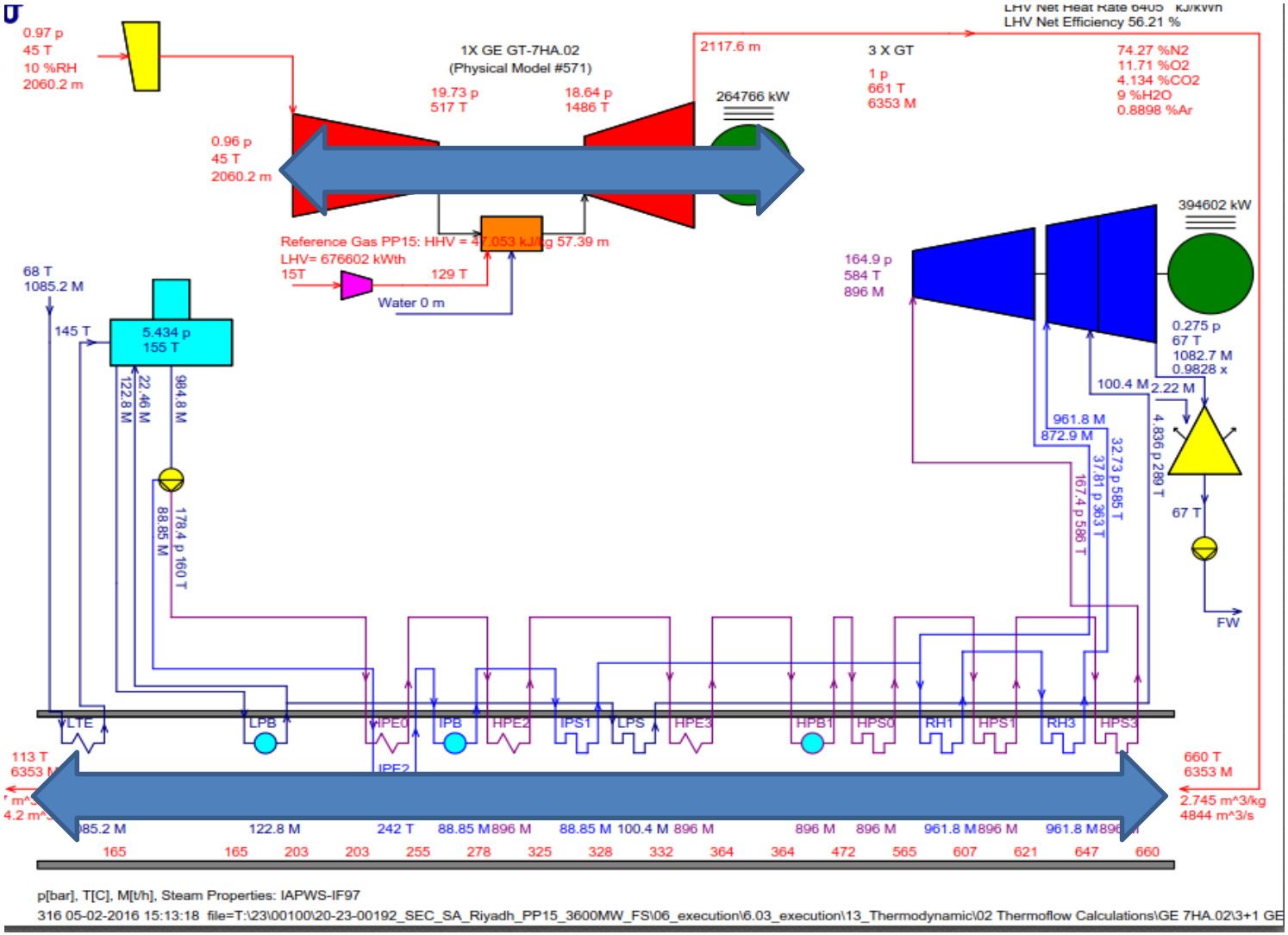
A	B	C	D	E	F	G	H	I	J
5.935 m	9.495 m	6.33 m	24.48 m	11.87 m	9.705 m	4.896 m	33.53 m	7.913 m	-

Thermoflow, Inc.	Company: Lahmeyer International GmbH
	User: W. Eisenhart
	HEAT RECOVERY STEAM GENERATOR
	ELEVATION
Date: 05/02/16	
Drawing No:	

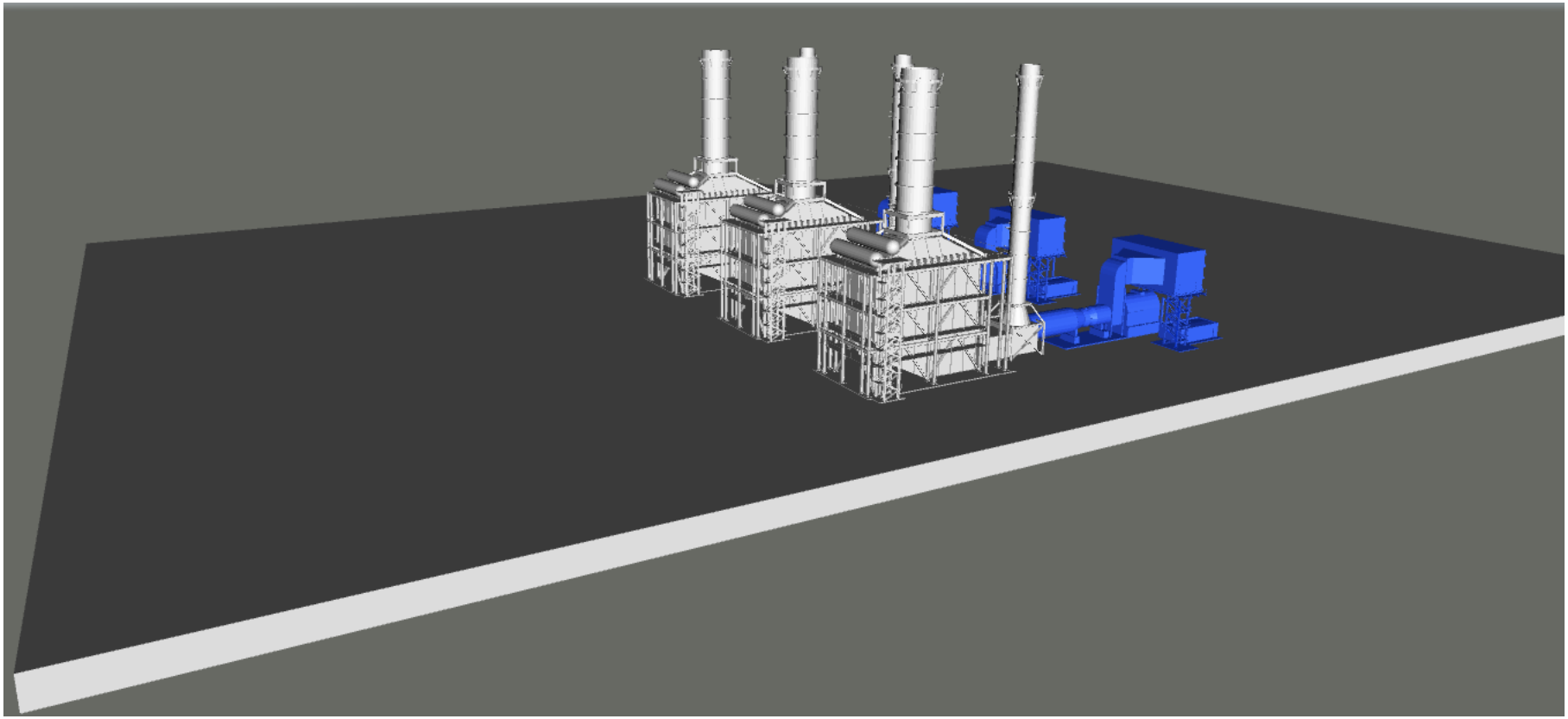
Conceptual Design: 3-D-Models HRSG‘s and Stacks



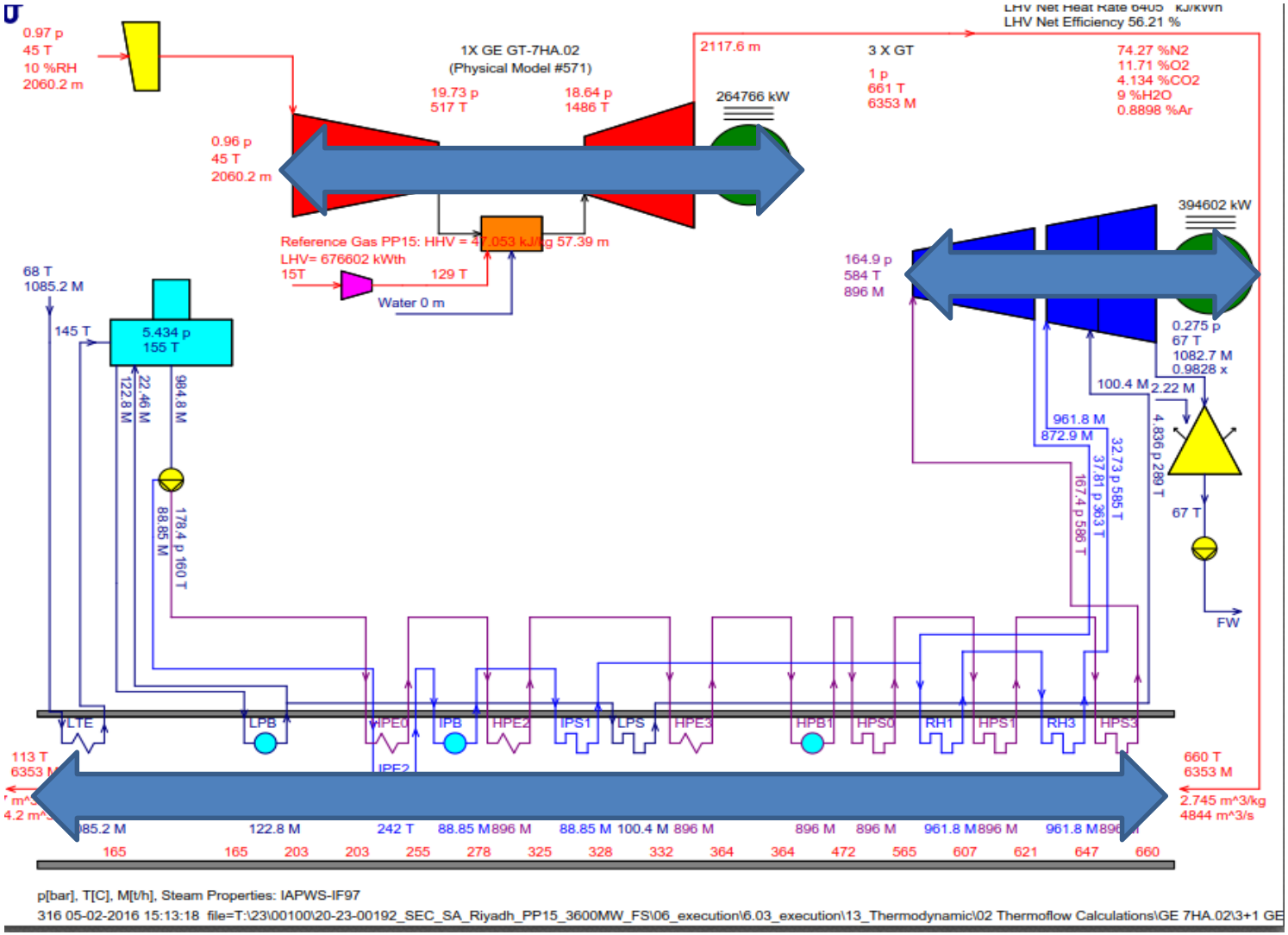
Conceptual Design: Thermo-dynamic Modelling HMBD



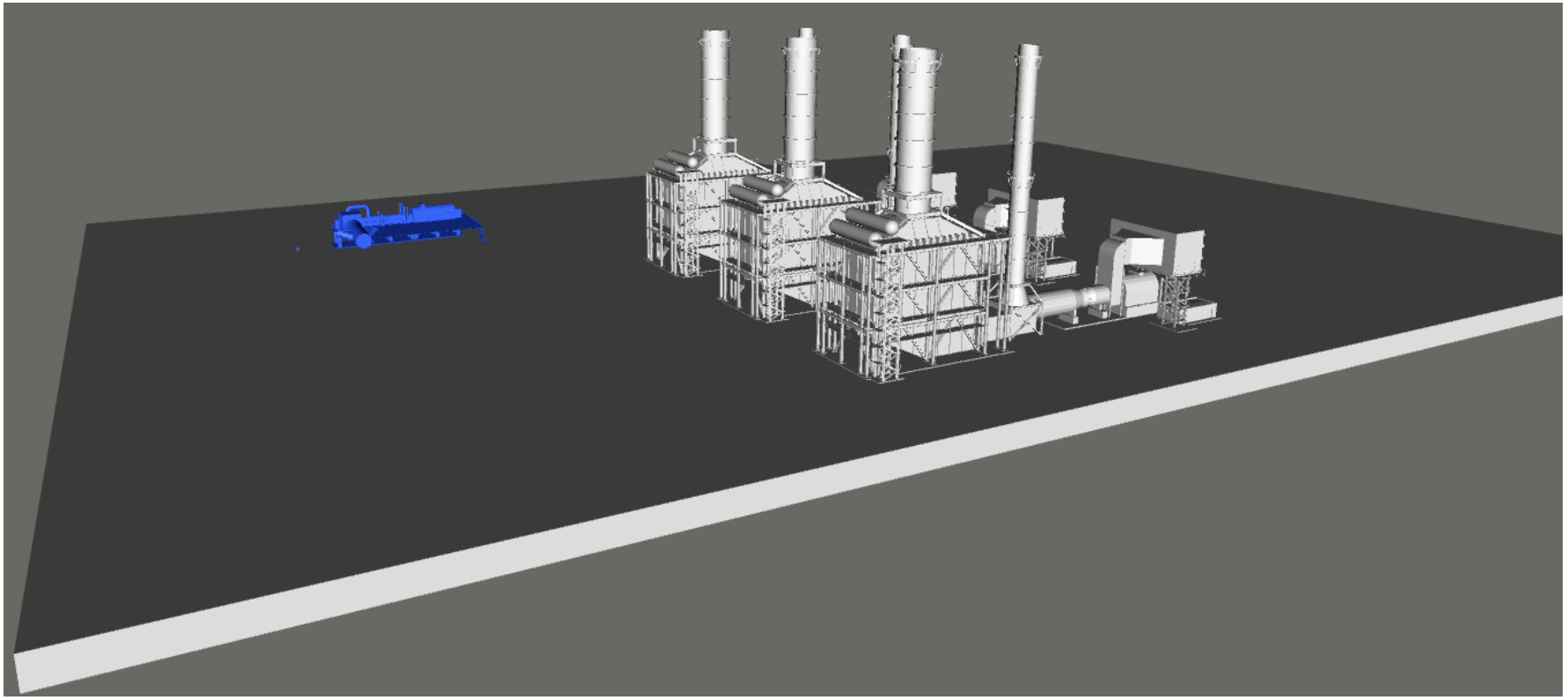
Conceptual Design: 3-D-Model + Gas Turbines



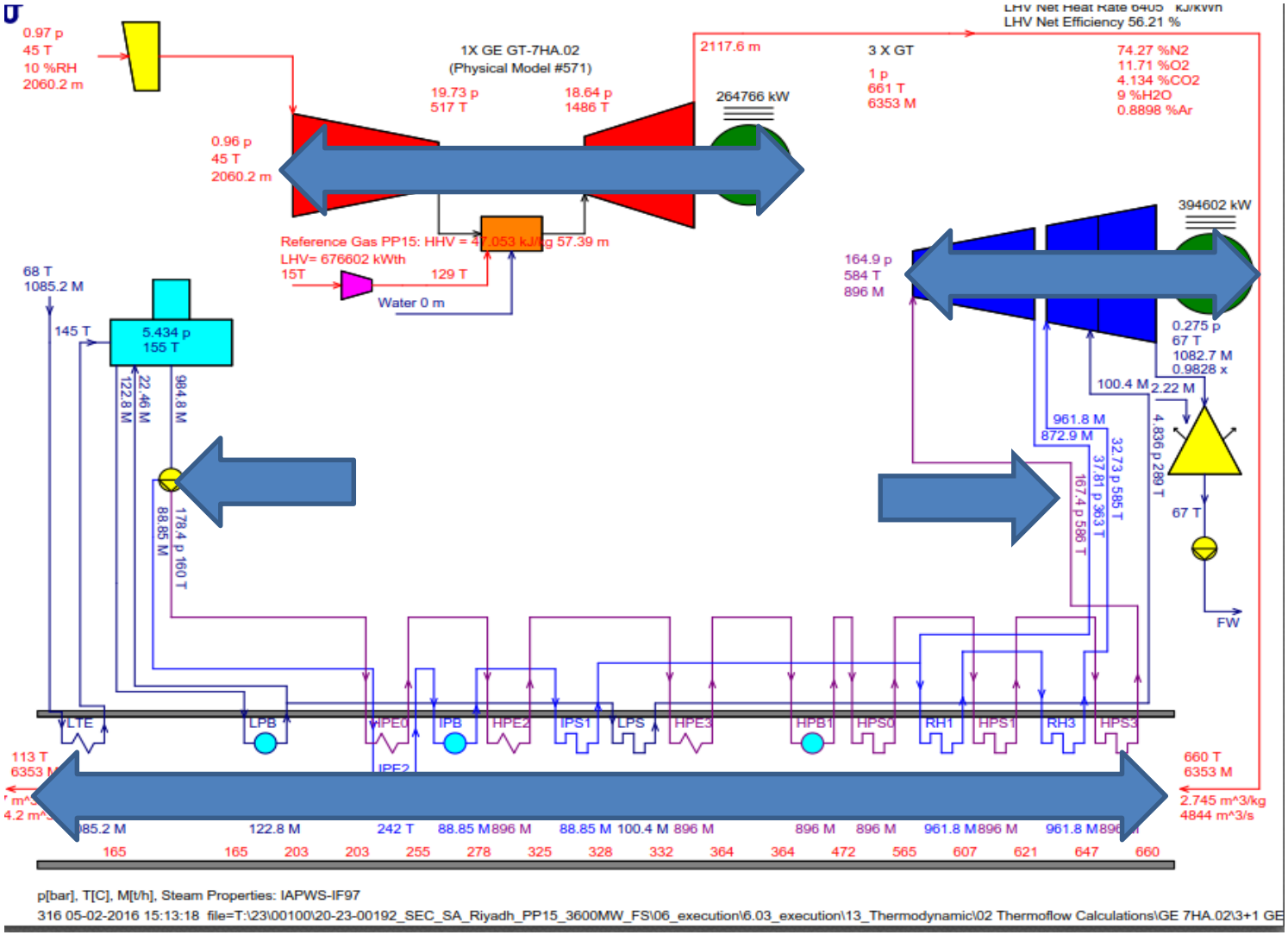
Conceptual Design: Thermo-dynamic Modelling HMBD



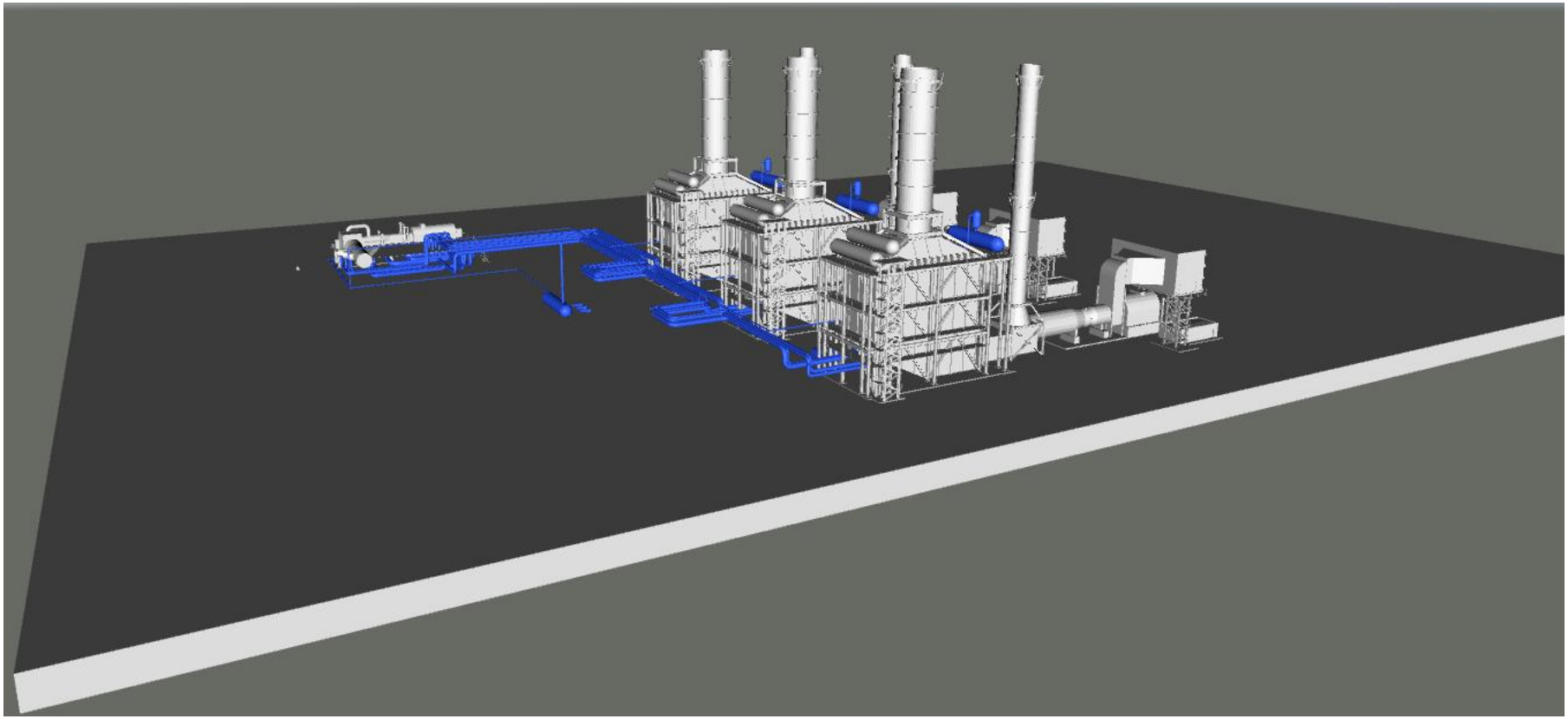
Conceptual Design: 3-D-Model + Steam Turbine



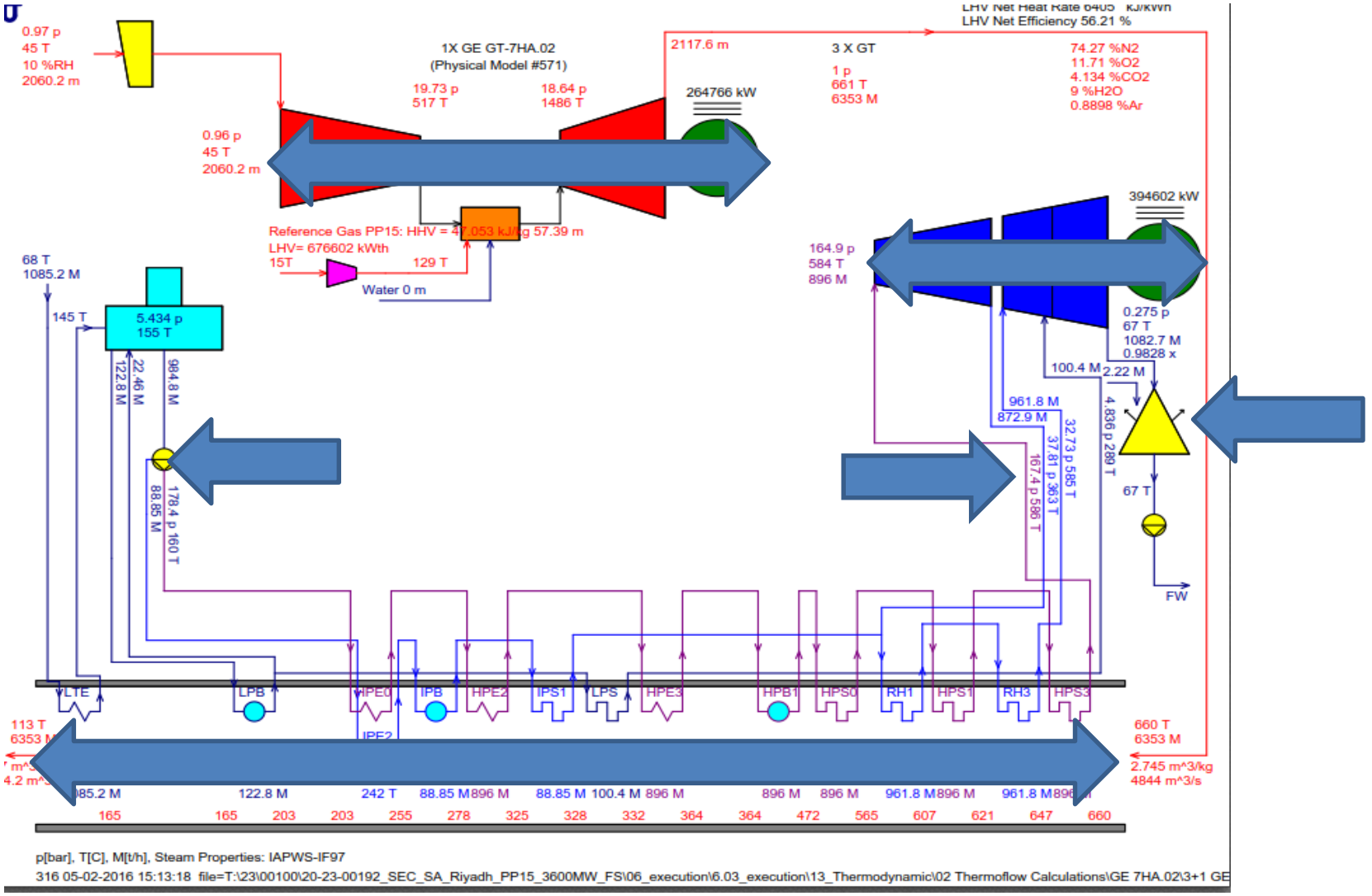
Conceptual Design: Thermo-dynamic Modelling HMBD



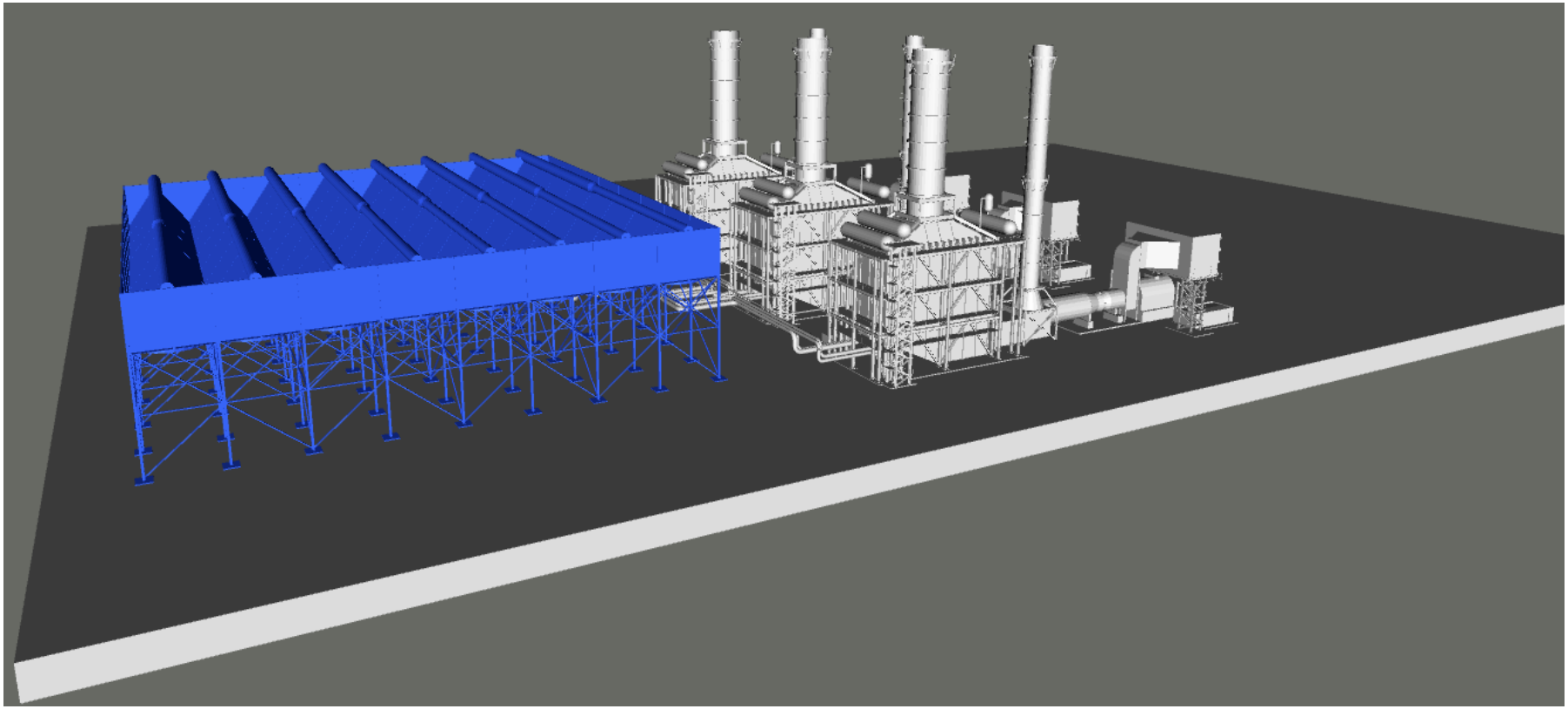
Conceptual Design: 3-D-Model + Steam-Water-Cycle



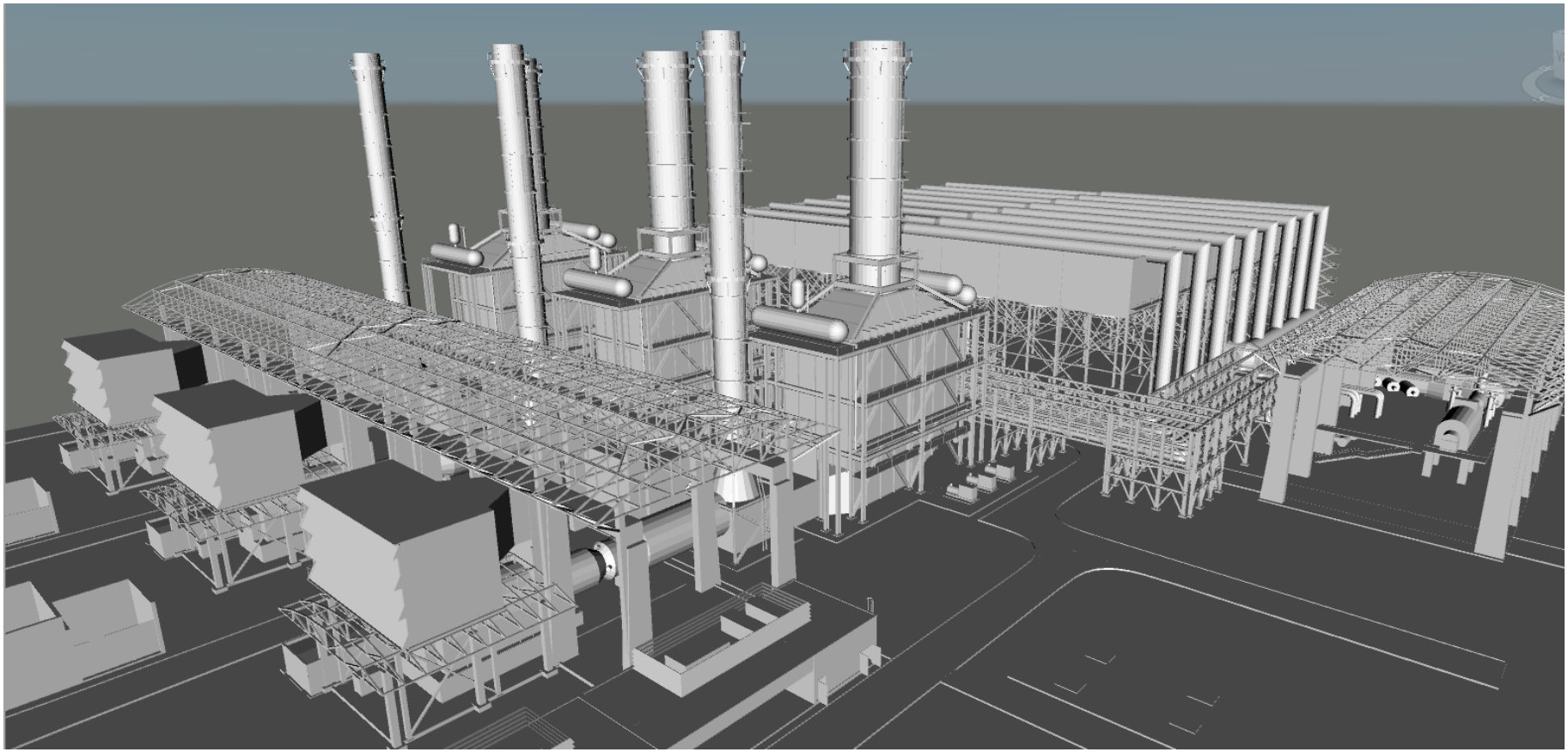
Conceptual Design: Thermo-dynamic Modelling HMBD



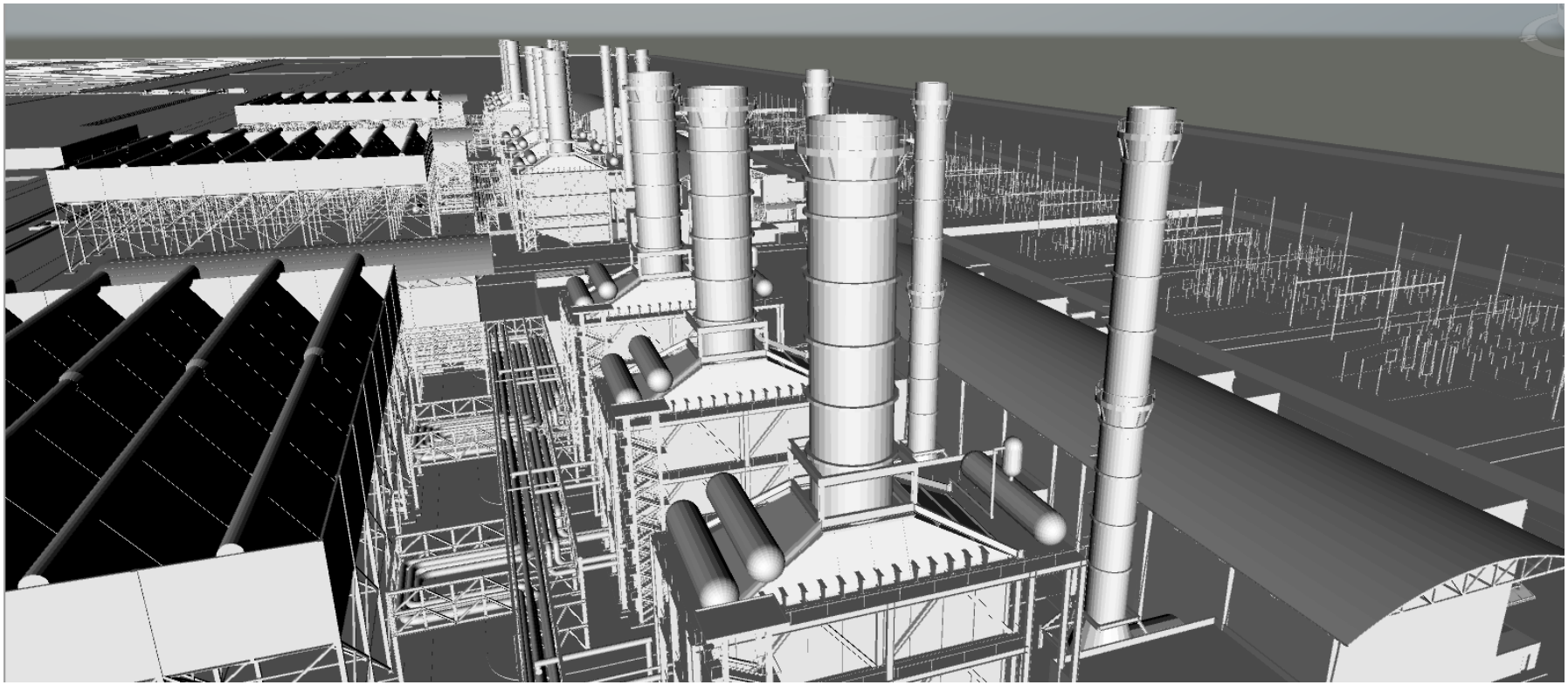
Conceptual Design: 3-D-Model + Air Cooled Condenser



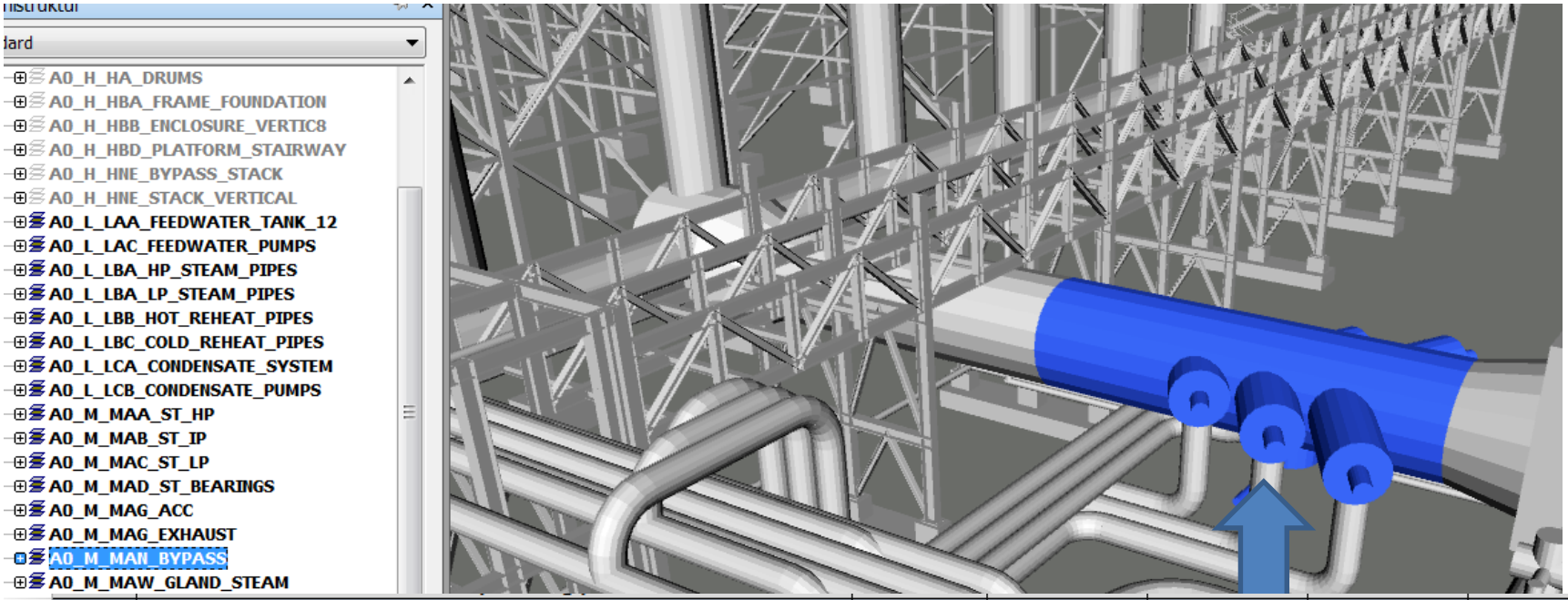
Conceptual Design: 3-D-Model + Structures



Conceptual Design: 3-D-Model, Complete Power Plant

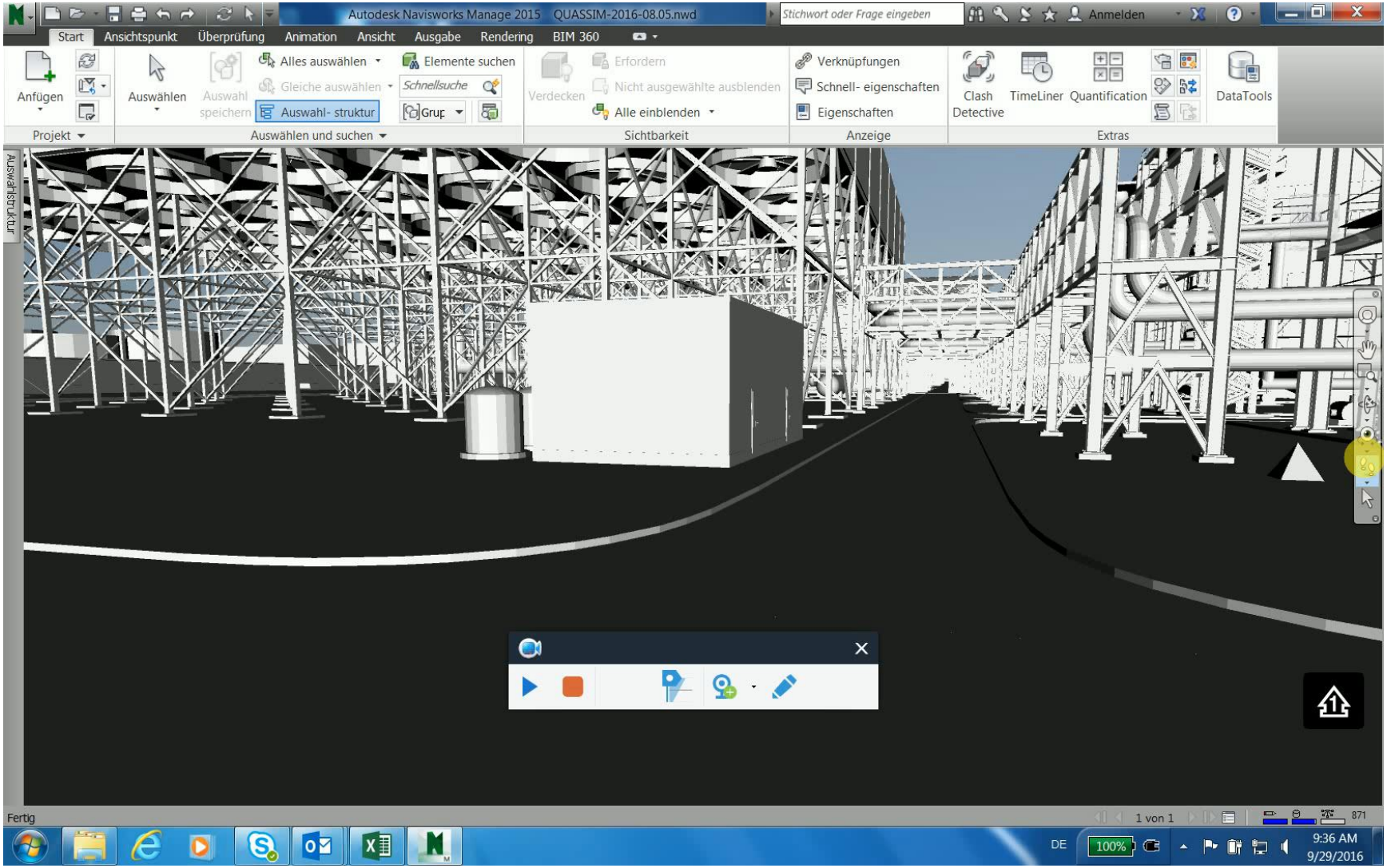


Conceptual Design: 3-D-Model, Equipment Identification

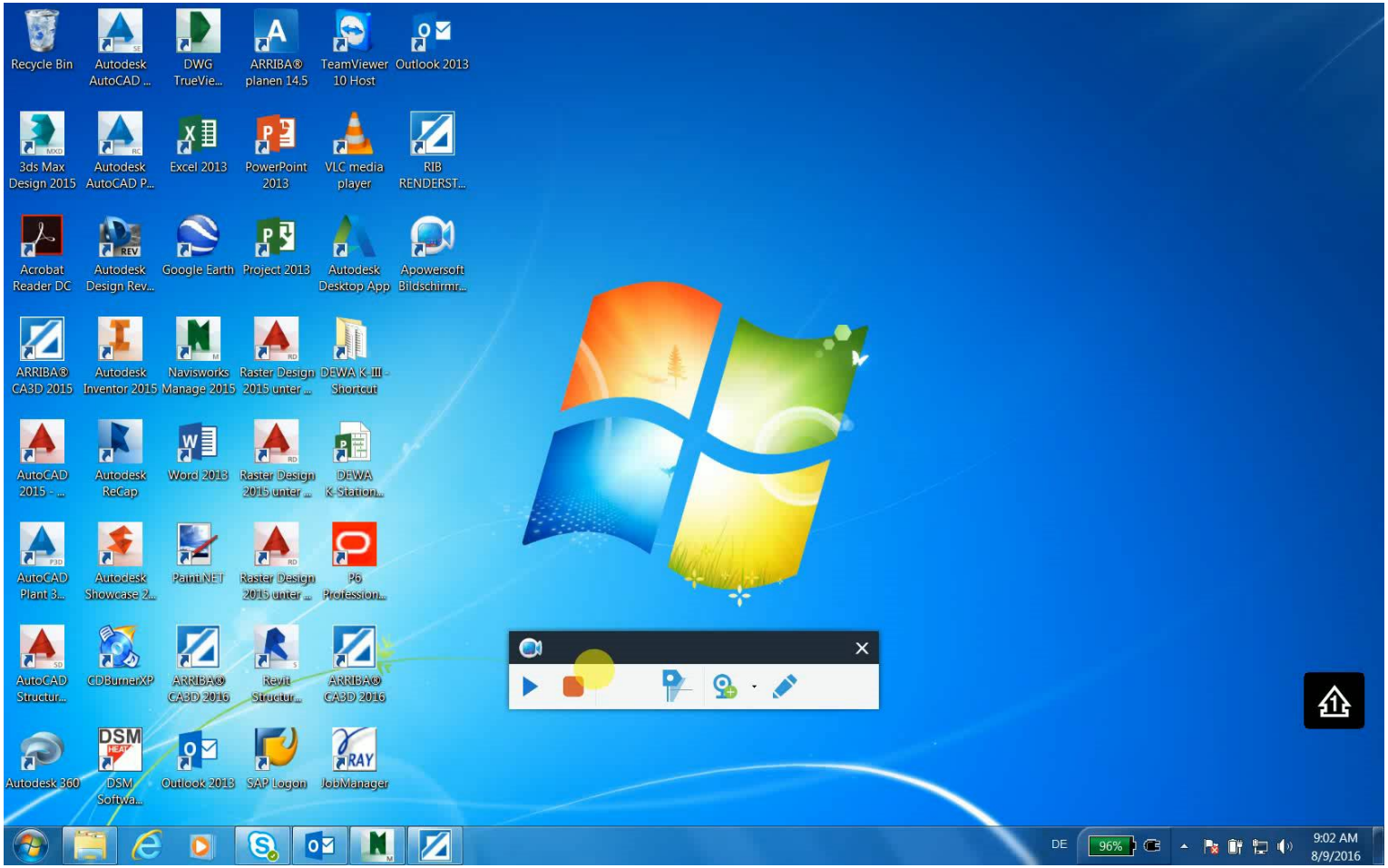


69	**M**	**MAIN MACHINE SETS**					
70	**MA**	**Steam turbine plant.**	**3**	**A0**	**B0**	**C0**	
71	MAA	HP turbine 482MW	**3**	A0	B0	C0	
72	MAB	IP turbine 482MW	**3**	A0	B0	C0	
73	MAC	LP turbine 482MW	**3**	A0	B0	C0	
74	MAD	Bearings for ST	**3**	A0	B0	C0	
75	MAG	Air cooled condenser, 64 cells	**3**	A0	B0	C0	
76	MAN	Turbine by-pass station	**3**	A0	B0	C0	
77	MAV	Lubricant supply system	**3**	A0	B0	C0	
78	MAW	Sealing steam system	**3**	A1	B1	C1	
79	**MB**	**Gas turbine plant.**					

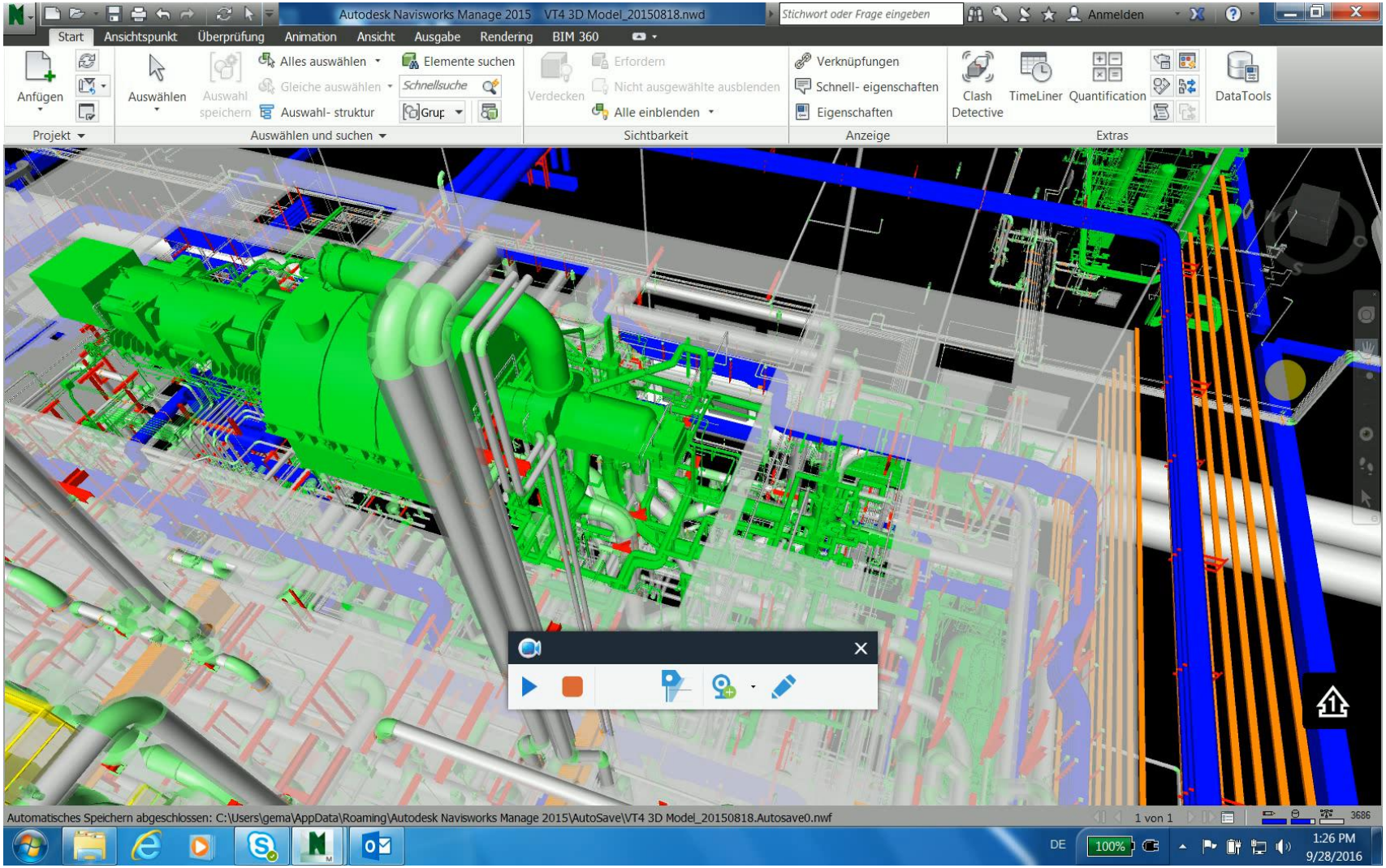
Conceptual Design: Virtual Walk



From Conceptual Design to SIEMENS Tender Proposal



Detailed 3-D-Design by Doosan, Project: Vinh Tan 4, Vietnam



THANK YOU VERY MUCH.